(51) International Patent Classification 7 : G06F 17/60	**A1**	(11) International Publication Number: **WO 00/45318** (43) International Publication Date: 3 August 2000 (03.08.00)

(21) International Application Number: PCT/US00/02222

(22) International Filing Date: 28 January 2000 (28.01.00)

(30) Priority Data:
60/118,189   1 February 1999 (01.02.99)   US
09/249,727   13 February 1999 (13.02.99)   US

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(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
With international search report.
Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: AGGREGATING ON-LINE PURCHASE REQUESTS
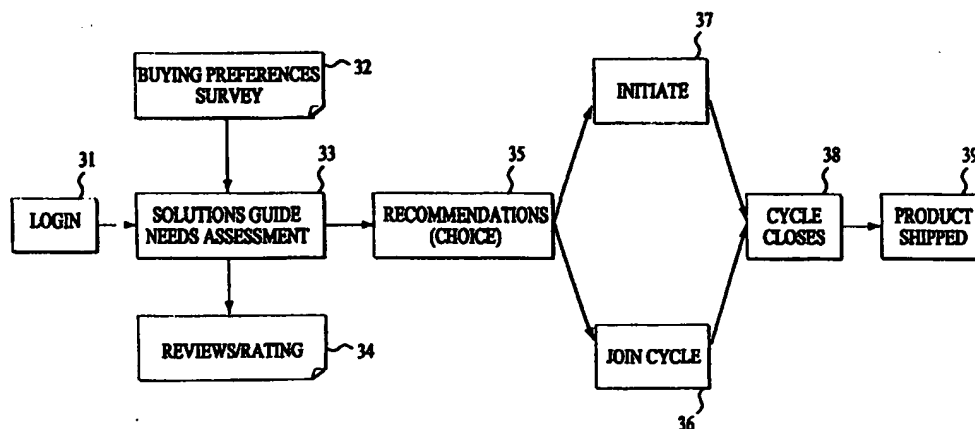
(57) Abstract

A system and technique which aggregates demand for products or/and services on a real time basis. Individual buyers are aggregated into temporary groups (36, 37). The members of a group can purchase at a volume price. The price paid is based on the number of members in the group. This is done without the members of each temporary group having any interaction with each other and without the members of each temporary group knowing anything about the other members of the temporary group. The price at which products are sold is based upon the number of individuals that have joined each particular group before the buy cycle closes (38).

1

2   **Aggregating On-Line Purchase Requests**

3

4   **Field of the Invention:**

5   The present invention relates to the internet and more particularly to a method

6   and system for selling products and helping customers make purchases via the

7   internet.

8

9   **Background of the Invention:**

10   Conducting electronic commerce over the internet has become very common.

11   Many products are sold over the internet utilizing a relatively conventional buyer-

12   seller transaction. That is, a merchant posts a description of products on a Web

13   page along with the price, a purchaser who sees the web page and who wants to

14   purchase the product then submits an order including a credit card number to the

15   seller's Web site. The merchant charges the purchaser's credit card and ships

16   the product to the purchaser.

17

18   The Internet also facilitates other types of commercial transactions and several

19   other internet marketing systems that are in widespread use. The other types of

20   systems that are in widespread use include on-line auction systems and systems

21   where the purchaser provides a price and the system then provides the product

22   or service if the price provided by the purchaser meets certain criteria. Examples

23   of prior art systems are shown in issued US patents 5,835,896 and 5,710,887.

24

25   **Description of the Present Invention:**

26   The present invention provides a system and technique which aggregates

27   demand for products and/or services on a real time basis. The invention is

28   implemented using an internet web site and a computer program. With the

1   present invention individual buyers are aggregated into temporary groups. The

2   members of a group can purchase at a volume price. The price paid is based on

3   the number of members in the group. This is done primarily without the members

4   of each temporary group having any interaction with each other and without the

5   members of each temporary group knowing anything about the other members of

6   the temporary group. The price at which products are sold is based upon the

7   number of individuals that join each particular group. By aggregating individual

8   purchasers into temporary buying groups on a real time basis, the invention

9   reduces supplier sales and marketing costs. The present invention provides a

10   "just in time demand system" which has advantages that are somewhat similar to

11   the those of the widely used just in time supply systems. The invention operates

12   in several steps which are termed a "buy cycle". In the first step a product

13   description is posted on a web page. A buy cycle is closed based upon a pre-

14   established criteria such as after a fixed period of time, after a preset number of

15   orders have been submitted, or after a criteria which taken into consideration the

16   rate at which orders are being received. After a buy cycle is closed the orders

17   are processed and fulfilled through one of two methods. The first technique for

18   filling orders is used in situations where a contract or arrangement has been pre

19   negotiated with a partner (i.e. a supplier, distributor, or other fulfillment agency).

20   In this situation when the buy cycle is closed, the order is processed and sent for

21   fulfillment to the partner with whom a supply contract was previously negotiated.

22   The second technique used to fill orders is as follows: when the buy cycle closes,

23   the order is put together and put out for bid, much like a request for proposal

24   (RFP). Multiple suppliers are encouraged to submit bids and contracts to fulfill

25   the order. The bids can be accepted either through electronic means, much like a

26   stock exchange, or through more traditional, manual processes. Once a bid is

27   accepted, the order is then sent to that supplier for fulfillment. After a buy cycle is

1   closed and the orders are processed in one of the above methods, the product is

2   shipped to the customers and the customer's credit card is charged.

3

4   **Brief Description of the Drawings:**

5   Figure 1 shows the layout of a web page.

6   Figure 2 shows a flow diagram of the membership process.

7   Figure 3 shows a flow diagram of the decision guide process.

8   Figure 4 shows a flow diagram of beginning a buy cycle.

9   Figure 5 shows flow diagram of the end of a buy cycle.

10   Figure 6 shows the watchdog cycle.

11   Figure 7 shows the opening of a buy cycle.

12   Figure 8 shows the no slice subroutine.

13   Figure 9 shows the maximum buy subroutine.

14   Figure 10 shows the current buy subroutine.

15   Figure 11 shows the price buy cycle.

16   Figure 12 shows the current price subroutine.

17   Figure 13 shows a first technique for determining price.

18   Figure 14 shows a second technique for determining price.

19

20   **Detailed Description of Preferred Embodiments:**

21   The preferred embodiment of the present invention is in the form of a computer

22   program that implements a web site. The web site which implements the present

23   invention gives purchasers (i.e. customers) a "just in time" demand experience.

24   Purchasers who visit the web site are provided with decision tools and product

25   information necessary to make intelligent purchasing decisions. Once a product

26   is selected, customers are presented with a price schedule based on volume

27   levels. Customers may simply purchase at the posted price or launch a buying

28   cycle.

4

1

2   A buying cycle is a purchasing cycle that aggregates demand for a particular

3   product within a given period of time. Buying cycles take into account three types

4   of purchase behaviors:

5   1.   Destination demand – customers who come to the web site specifically to

6   purchase a product

7   2.   Latent demand – those customers who have previously provided buying

8   profiles and wish to be notified when certain purchasing requirements are

9   met. These customers are notified via email when their requirements are

10   matched.

11 3.   Impulse demand – those customers who visit the web site for any of a variety

12   of reasons (unrelated to a particular product) and who when they visit the web

13   site discover value and thereby develop a desire for the particular product.

14

15 Any of the above types of demand can motivate a customer to join a buying

16 cycle. At the time a customer joins a buying cycle, the customer is made aware

17 of the MAXIMUM price they would have to pay should no other customers join

18 that cycle. As additional customers join the buying cycle, the unit price declines.

19 With the present invention buyers work together instead of against each other. In

20 contrast to the operation of the present invention, in online auctions, customers

21 bid against each other.

22

23 Once a buying cycle is closed, the system completes the transaction in one of

24 two ways. The first technique for filling orders is used where the operator of the

25 web site has previously negotiated a contract or arrangement with a partner (i.e.

26 a supplier, distributor, or other fulfillment agency) to supply a product according to

27 a particular price-volume schedule. In this situation once the buy cycle is closed,

28 the order is processed and sent to the partner for fulfillment of the order.

1

2   The second technique for filling orders is a reverse auction where suppliers bid

3   against each other to fill orders. With this technique after a buy cycle closes, the

4   order is put together and put out for bid, much like a request for proposal (RFP).

5   Multiple suppliers are urged to submit bids or contracts to fulfill the order. The

6   RFP and the bids can be taken either through electronic means, much like a

7   stock exchange, or through more traditional, manual processes. Once a bid is

8   accepted, the order is then sent to that supplier for fulfillment. The orders are

9   filled either at the prices originally posted or at a lower price if a lower bid is

10   obtained. The prices initially posted on the web site for products subject to a

11   reverse auction process can either be an estimate of what prices the suppliers

12   will bid or the initially posted prices can be prices provided by a back-up supplier

13   who has agreed in advance to provide product at this price if no other supplier

14   bids lower. Other alternatives described below are also possible.

15

16   Text on the web site will tell prospective customers how orders for each product

17   will be filled and any other special rules applicable to a particular buy cycle. That

18   is, prospective customers will be informed if orders are to filled at pre established

19   prices in accordance with a pre-established supplier contract or if the prices

20   posted are maximum prices that a customer will have to pay if no supplier

21   submits a lower bid. It is noted that supplier bids can be accepted in real time

22   and suppliers can be given the opportunities to bid in real time.

23

24   The invention is implemented by means of application program which runs on a

25   conventional web server. The web server can be any of the conventionally used

26   web servers such as those marketed by Sun Microsystems Corporation or those

27   marketed by the Microsoft Corporation. Such servers operate under a system

28   control program which in turn calls an application program. For example the

1   Microsoft IIS 4.0 Web Server program has an associated Microsoft Site Server

2   program that provides basic cataloging functionality, order processing capability   -

3   and a transaction pipeline which performs such operations as calculating tax due,

4   and credit card verification. The preferred embodiment of the invention as

5   described herein is implemented as an application program or web site operating

6   under a server operating system.

7

8   The web site which implements the present invention includes a number of linked

9   web pages and a computer program which implements various functions required

10   in order to implement the invention. The web site is conventional except for the

11   specific functions described herein. The manner in which the web pages are

12   accessed and the manner in which the program described below is integrated

13   into the site operating system are conventional and thus they are not specifically

14   described herein. Reference is made to text books such as the following for a

15   description of how web sites are implemented and for a description of how

16   application programs are operated on a web site:

17   1) Information Architecture for the World Wide Web by: Louis Rosenfeld, Peter

18   Morville / O'Reilly & Associates / March 1998

19   2) Web Design Resources Directory : Tools and Techniques for Designing Your

20   Web Pages by: Ray Davis, Eileen Mullin   Published 1997

21   3) Microsoft Internet Information Server 4 : The Complete Reference (Complete

22   Reference) by: Tom Sheldon, et al / Paperback / Published 1998

23

24   The primary actions on the web site which implements the present invention take

25   place during what is termed a "buy-cycle". During a buy cycle, customers

26   indicate that they want to buy a particular product and orders are accumulated.

1   The number of orders accumulated during a buy cycle determines the price at

2   which the particular product is sold.

3

4   Figure 1 shows a block diagram of a web page referred to as the "order web

5   page" and designated as web page 2. . The order web page includes:

6   a) a product description window 3 which includes a description of a

7   particular product,

8   b) a price-volume window 4 which lists the price for various volumes of the

9   product,

10   c) an orders received window 5 which lists the number of orders received

11   during the active buy cycle,

12   d) a "buy-button" 6 to indicate a buy decision,

13   e) a time remaining window 7 which shows the time remaining in the

14   particular buy cycle, and

15   f) a buy cycle closed window 8 which shows that the particular buy cycle

16   has been closed.

17   g) a heading and logo window 9 which gives information about the

18   company.

19 The following is a specific example of a price schedule that appears in price

20 volume window 4:

Items ordered in the cycle:	Unit price:
1-10.	500
11-30.	475
31-50.	450
50-100	425
100+	400

21

1   It is noted that Figure 1 is a block diagram of a web page. An actual web page

2   would include colors and graphics to make the web page appealing to

3   consumers. The web page could also include various other related information,

4   links and choices.

5

6   Customers who visit the web site can order the product by pressing (i.e. clicking

7   on) the buy button 6. The number of customers who have ordered the particular

8   product during the particular buy cycle is shown in the orders received window 5.

9   The time remaining in the particular buy cycle is shown in window 7. When the

10   buy cycle ends, no further orders are accepted for the particular product during

11   that particular buy cycle and the orders are filled through one of two ways. The

12   first technique is used where a contract or arrangement has been pre negotiated

13   with a partner (i.e. a supplier, distributor, or other fulfillment agency). In this

14   situation once the buy cycle is closed, the order is processed and sent to the

15   partner for fulfillment of the order. In situations where no supply contract has

16   been pre negotiated, when the buy cycle closes, the order is put together and put

17   out for bid, much like a request for proposal (RFP). Multiple suppliers are

18   encouraged to submit bids and contracts to fulfill that order. The RFP and the

19   bids can be handled either through electronic means, much like a stock

20   exchange, or through more traditional, manual processes. Once a bid is

21   accepted, the order is then sent to that partner for fulfillment. In this situation the

22   order is filled at either the posted price or at a lower price if a bid lower than

23   expected is received.

24

25   As indicated by blocks 21 and 22 in Figure 2, advertisements or word of mouth

26   (or serendipity) brings prospective customers to a home page (or entry point) 23

27   on the web site. The home page 23 describes the system and provides a

28   mechanism for prospective customers to indicate that they would like to register

9

1   for use of the site. Prospective customers can simply join buying cycles and

2   purchase products for a transaction fee or they can register as "members" which

3   requires payment of a membership fee. Customers who pay a membership fee

4   and register as members obtain certain privileges not available to guests. Web

5   sites which allow for both guests (at no fee) and members (with the payment of a

6   fee) are conventional. The registration process is conventional and the web site

7   includes a web page (not explicitly shown herein) which includes fields in which a

8   customer can enter registration information. As indicated by block 24, both non

9   members and prospective members provide information which is collected to

10   generate a profile 25. If a customer visits as a member, or if a guest or member

11   orders a product, the information in their profile is used to bill their credit card. As

12   shown by block 26 in Figure 2, a membership fee, or a lower guest fee is charged

13   to the customer's credit card. Such operations are conventional.

14

15   After a prospective customer has registered as either a member or as a guest as

16   described above, the customer can login as indicated by block 31 in figure 3. As

17   indicated by block 33, once a customer has logged into the system they are

18   provided with a "solutions guide" web page 33 which helps the customer pick an

19   appropriate product. The solutions guide web page 33 includes hyperlinks to

20   buying preferences survey web page 32 and a review and rating web page 34.

21   As a result of the help provided by web page 33, the customer makes a choice as

22   indicated by block 35. If the customer's choice is for a product that already has

23   an active buy cycle, the customer's choice results in an order in that buy cycle as

24   indicated by block 36. If the customer's choice is not a product which has an

25   active buy cycle, a buy cycle is initiated as indicated by block 37. At a pre-

26   established time, the buy cycle closes as indicted by block 38 and the product is

27   shipped and the customer is charged as indicated by block 39. Figures 13 and

28   14 which will be explained later described how the price is determined in an

1   interval between when a cycle is closed and when a product is shipped, that is,

2   between block 38 and 39 in Figure 3.

3

4   Figures 4 to 12 give detailed program flow diagrams of the programs that operate

5   during a buy cycle. Once a buying cycle starts, a series of individual purchase

6   requests are collected by a central server referred to herein as the primary

7   aggregation server. Instead of having one primary aggregation server, individual

8   purchase requests can be collected by a number of distributed secondary

9   aggregation servers. That is, the individual purchase requests can be collected

10   by a number of remote computers linked to an aggregation server through a

11   communication link.

12

13   Buy-cycles can be started at any time. Buy cycles end when a preset number of

14   purchase requests have been exceeded, or if a preset time limit has elapsed.

15   Prior to the start of a buy cycle, a price-point structure is set by a system

16   administrator (not shown). The system administrator sets a minimum and

17   maximum number of purchase requests for each price point and this information

18   is listed on the order web page 2. Prospective customers therefore have

19   accurate price information at all times time during the buy-cycle. As each

20   purchase request is entered and validated into the aggregation server during the

21   buy-cycle, a counter is incremented (or decremented) identify the current number

22   of purchase requests. When the buy-cycle closes, the counter is consulted to

23   establish the final price attributed to the buy-cycle.

24

25   Each buy-cycle relates to a particular item for sale with a price structure

26   constructed as follows:

27

28

11

Table A.1: Price Structure Construction

	Number of Items		
Slice Number	Minimum	Maximum	Price
0	$n_0=0$	n_1-1	P_0
1	n_1	n_2-1	P_1
2	n_2	n_3-1	P_2
3	n_3	n_4-1	P_3
m-1	n_{m-1}	n_m	P_{m-1}

The price structure is divided into "m" price slices, each with a corresponding price

"P_m". For each price slice, there is a minimum number of items for sale "n_m" and a

maximum number of items "$n_{m+1}-1$". A representative example is as follows: :

Table A.2: Price Structure for Sample Buy-Cycle

	Number of Items		
Slice Number	Minimum	Maximum	Price
0	0	3	$10.00
1	4	9	$9.75
2	10	11	$9.00
3	12	49	$8.00
4	50	199	$6.50

Note:

1. By definition, a price structure as at least two (2) price slices.

2. The largest maximum number of items for the last price slice corresponds to the

cut-off point, which, if reached, will end the buy-cycle.

1

2 In order to manage buy-cycles, the following operations are defined. Each buy-

3 cycle is identified through a unique buy-cycle identifier called buy_cycle_id.

4 1. Begin (buy_cycle_id,time_t), which initializes and starts a buy-cycle that will

5 last until time_t,

6 2. End(buy_cycle_id), which terminates the buy-cycle either manually or by being

7 called from the buy-cycle watchdog, and

8 3. Watchdog(buy_cycle_id), which automatically supervises the status of a

9 selected buy-cycle.

10

11 The following operators are defined to determine state information about buy-

12 cycles:

13 1. Open(buy_cycle_id), which returns a Boolean result on whether or not the buy-

14   cycle referenced by the unique buy-cycle identifier buy_cycle_id is active,

15 2. No_slice(buy_cycle_id), which returns the number of slices m for the specified

16   buy-cycle,

17 3. Max(buy_cycle_id), which returns nm for the specified buy-cycle,

18 4. Current(buy_cycle_id), which returns the current number of purchase requests

19   for the buy-cycle, represented as ncurrent,

20 5. Price(buy_cycle_id,n), which returns the price point for the specified cycle with

21   n purchase requests, and

22 6. Price_current(buy_cycle_id)—the logical equivalent of

23   price(buy_cycle_id,n_current), which returns the price point corresponding

24   to the current number of purchase requests.

25

26 Figure 4 shows the process that is called whenever a defined buy-cycle needs to

27 be set into active mode. For example this could occur as indicated by box 37 in

28 Figure 3. As indicated by block 210, a subroutine named open() and which is

1   shown in Figure 7 determines if the particular buy cycle is already open. If the

2   buy cycle called is already open, this information is returned to the main program

3   as indicated by block 211. This could either mean that there has been some

4   error or it could be a notice to the main program to go to block 36 shown in Figure

5   3. As indicated by block 212, if the buy status is not active, the status is set to

6   active. Next, as indicated by block 213 the time limit for the buy cycle is set to a

7   value time_t. As previously indicated the value time_t could either be a fixed

8   value or it could be determined in a number of ways dynamically.

9

10   At he end of a buy cycle, the subroutine shown in Figure 5 is called. First as

11   indicated by block 220, a determination of whether the cycle is already open is

12   made by the subroutine open(). If the buy cycle is not open, no action is taken as

13   indicated by block 221 and control is returned to the calling program. If the buy

14   cycle is open, the status is set to inactive as indicated by block 222 and the buy

15   cycle administrator (which could be another program or a human operator) is

16   notified as indicated by block 223. At this point the orders that have been

17   entered during the buy cycle are executed in a conventional manner. That is the

18   products are shipped and the customer's credit cards are charged.

19

20   Figure 6 shows the subroutine called "watchdog" which operates while a buy

21   cycle is active. The watchdog process oversees the status of a specific buy-cycle

22   from its inception until the buy-cycle is either terminated manually or when certain

23   buy-cycle-specific time or volume limits have been achieved. As indicated by

24   block 230 and 231 a check is first make to insure that the buy cycle is in fact

25   open. As indicated by blocks 232, 233 and 234, the current time and the buy

26   cycle expiration time are obtained and compared. As indicated by block 234 if

27   the if the buy cycle time has ended the sub routine end() is called. Blocks 235,

28   236 and 237 indicate the if the buy cycle is active, the current number of requests

1   is obtained and compared to the maximum number of requests. If the number of

2   requests exceeds the maximum number allowed for that buy cycle, the buy cycle -

3   is ended. If the number of requests is less than the maximum, the subroutine

4   goes to sleep for a period of time as indicated by block 239 and it then repeats.

5   Providing such a sleep period for such a subroutine is conventional.

6

7   Figure 7 shows the subroutine with is used to determine if a buy cycle with a

8   particular ID is open. A conventional data base (not explicitly shown) is used to

9   store the ID's of the open buy cycles. blocks 240 and 241 indicate that the ID of

10   a buy cycle is compared to data in a data base and then a determination is either

11   made the by buy cycle is active (block 242) or a determination is made that the

12   buy cycle is not active (block 243).

13

14   Figure 8 shows the subroutine which is used to determine the number of price

15   slices within a buy-cycle. This subprogram sets the value of the variable "m". As

16   indicated by blocks 250 and 251,the number of rows in the table (see above table

17   1) for a particular buy cycle ID is obtained and used to set the value of the

18   variable "m". Block 260 and 270 in Figures 9 and 10 shows how the variables

19   "no_items_max" and "no_items_current" are set. Figure 9 shows how the

20   maximum number of items available for the buy-cycle is determined. Figure 10

21   shows the current number of purchase requests within the buy-cycle is

22   determined. It is noted that the SQL calls are a standard technique for getting

23   data from a data base such as the commercially available and widely used Oracle

24   data base marketed by Oracle Corporation or the widely used Access data base

25   marketed by Microsoft Corporation. The particulars of the data based used to

26   store various information used by the described embodiment of the invention are

27   conventional and not explicitly shown herein.

28

1   Figure 11 shows how the price at which orders are executed is calculated at the

2   end of a buy cycle. The operator illustrated in Figure 11 is used to calculate the

3   price corresponding to the given number of purchase requests within the buy

4   cycle. Block 280 shows that at the beginning of the subroutine the variables are

5   initialized. Next as indicated by block 281, an SQL call to the data base is made

6   to set the variables P_O and n_o. Blocks 282 and 283 show that the variable m

7   is incremented and that the value of the variable P_m and n_m is obtained from

8   the data base. Next as indicated by block 284 a check is made to determine if

9   n_m is greater than n. As indicated by block 285, if it is larger the price is set to

10   P_(m-1). If it is smaller, a check is made by block 286 to determine if n equals m.

11   If it does the price is set to P_m. If it is not the process repeats to block 282.

12

13   Figure 12 shows a block diagram of the operator used to calculate the price

14   corresponding to the current number of purchase requests within the buy-cycle.

15   First as indicated by block 290, the value of n is set. Next as indicated by block

16   291 the subroutine price() is called to set the price.

17

18   As previously indicated the price at which orders are filled depends upon whether

19   or not a pre-negotiated and pre-established commitment has been obtained from

20   a supplier to provide products at the prices posted. If such a contract exists when

21   the cycle is done product is supplied at that price. This is shown by blocks 131

22   and 132 in Figure 13. Blocks 131 and 132 indicate that the final price is

23   calculated based upon the supplier price schedule.

24

25   If the prices posted are estimated prices, and no contract exists with a supplier to

26   supply prices at the posted prices the sequence shown in Figure 14 occurs.

27   Once a buy cycle ends as indicated by block 38, the number of products that

28   have been ordered is calculated as indicated by block 141. This information is

16

1   disseminated to prospective suppliers and these suppliers make offers as

2   indicated by block 142. The best value is determined as indicated by block 143   --

3   and then a supplier is selected as indicated by block 144. Finally as indicated by

4   block 39 orders are filled at the price in the selected offer and product is shipped.

5   A variety of techniques can be used to handle the situation in which no supplier

6   offers to provide the product at a price that is at least as low as the price posted.

7   For example, customers could be told on the web site that if this situation occurs,

8   the orders will not be filled. Alternatively, the system could be operated on the

9   basis that the company operating the web site will pay for any difference between

10   the posted price and lowest price bid by suppliers. Still another alternative is that

11   before any product is offered at a posted price an arrangement will be negotiated

12   with a back-up supplier who agrees to provide the product at the posted price.

13

14   The present invention provides for two types of revenue flows for the operator of

15   the web site:

16   Subscription fees - designed to drive value for repeat buyers and to raise

17   customer switching costs. Customers will pay a modest subscription fee, to be

18   renewed periodically such as annually.

19

20   Transaction fees - charged on each purchase through the system (subscription

21   customers will be exempt from all transaction fees). Transaction fees are

22   designed to encourage trial and facilitate the purchase of one-off goods.

23

24   In addition to the web pages described above, the web site which implements the

25   present invention can include a variety of other web pages which together form a

26   complete site. For example the site includes a "home" page which is a starting

27   point for customers to enter the system and a main page which provides links to

28   other information such as information for suppliers who want to offer products,

1   information for investors, information for partners interested in the technology,

2   and notices of employment opportunities.

3

4   The web site includes a conventional check out page and an order summary

5   page which displays all the information about an order and requires the customer

6   to press a button indicating that the information is correct.

7

8   The site can also include a variety of other web pages, all of which can be

9   reached by "link" buttons displayed on some or all of the web pages. The

10   following is an example of an additional web page that can be included in the web

11   site. For example the web site can include a "Shopping Basket Web Page". As

12   is conventional such a page could be reached by clicking a checkout button

13   located in a mini-shopping cart which can be displayed on various other pages.

14   A Shopping Basket Web Page can be a first step in a checkout process. The

15   shopping basket web page can include the following elements:

16   a) editorial content

17   b) product name and manufacturer logo

18   c) product availability

19   d) the current price i.e. The is the maximum amount the customer will have to pay

20   e) transaction fee which the customer must pay.

21   f) subtotal: i.e. the total price for all the items in the cart (shipping and tax to be

22   added in the next step)

23   g) dollar savings to on the individual product. i.e. the list price minus the current

24   price

25   h) total dollar savings on all items in cart

26   i) a "remove" box : clicking this box will remove the item from the cart when the

27   page is refreshed.

28   j) the time and date when this cycle will close.

1   k) Toolbar with standard buttons for items such as Help, About Us, Feedback,

2   Account info, etc.

3   l) Special Buttons for items such as:

4   -   quantity box

5   -   change quantity

6   after changing the quantity in this box, the customer can press a button to

7   reload the page. The refreshed quantity box will show the request quantity. To

8   remove the product from the shopping cart, the customer can either check the

9   remove box or change the quantity in the shopping cart to zero.

10   -   Checkout button (with text , "please verify above information and click here to

11   continue"

12   m) Links to web pages which give:

13   -   security policy

14   -   returns and refund policy

15   -   cycles in progress

16

17   The web site can include a "buy cycle ticker" that communicates what's

18   happening on the buy cycles. The buy cycle ticker is similar to a stock ticker that

19   runs across TV and computer screens. It highlights a named product (i.e.

20   notebook computer), a brand (Toshiba); a current price (i.e. $1200) and the

21   number of buyers in the cycle (e.g. 43). Two buy cycle tickers could be provided,

22   one in a red color to show immediately cycles closing, one in green to show

23   cycles that will close later.

24

25   The site can include provisions by which a customer can activate during the

26   registration process so that the customer will be notified by e-mail of events such

27   as:

28   1) New items listed on the site.

1   2) The fact that a buy cycle has reached a particular price point.

2   3) Thank you messages.

3   E-mail can also be used to notify customers that products have been shipped and

4   that their credit cards have been charged for a purchase.

5

6   The site includes a mechanism so that if a customer leaves the site with items in

7   the shopping cart, the items will appear in their respective areas once the

8   customer returns, as long as a cycle still exists for that particular product. If the

9   cycles are discontinued for that particular product, the item should be removed

10   from the shopping cart.

11

12   The tool bars on the various web pages can include a variety of button, For

13   example there can be buttons to contact the supplier, a button to get account

14   information. Various links can be provided such as links to explain company

15   policy, links to a privacy statement. to account information and to various product

16   selection help aids.

17

18   A data base program such as a conventional Oracle or Access data base would

19   have stored therein information about the various products being offered for sale.

20   When a new buy cycle for a particular product is initiated, information from this

21   data base would be used to provide information for an appropriate order page

22   such as that shown in Figure 1. Registration information about members would

23   be kept in this same data base. An administrator would update the data base as

24   new products become available or with other product and price changes. Such a

25   data base for providing information for a web site would be conventional.

26

27   The present invention drives true value to its customer base when demand

28   volume can be identified and coordinated to facilitate transactions. In order to

1   ensure that buying cycles are maximized by optimum market reach, techniques

2   such as the following can be used:

3

4   When a customer has joined a buying cycle for a particular product, they can be

5   given the opportunity to notify their colleagues, via a pre-formatted email, about

6   the web site and about the buying cycle in progress. Such a tool enables

7   customers to draw as many people possible into the buying cycle for maximum

8   price benefit i.e. the more people that join a cycle, the lower the price per unit.

9   The email can communicate the value proposition, give details of the buying cycle

10   in progress, and invite the recipient to visit the web site and join the buying cycle

11   themselves. Such a tool can drive awareness at a "grassroots" level, leveraging

12   personal networks and communities that have been empowered by the inherent

13   benefits of the Internet.

14

15   In order to further drive audience exposure to buying cycles, Sponsor Partner

16   Program can be used for vertical online communities (e.g. companies,

17   organizations, etc.) and horizontal online communities (e.g. organizations that

18   provide information which is displayed on web sites etc.). Such partners have a

19   large member base in place, and they can be used to uniquely provide the

20   service available by use of the present invention to this mass audience.

21

22   Sponsor partners can be given strategic branding opportunities through a

23   sponsor banner located throughout the web site which implements the invention.

24   This branding will be visible to those customers entering through their respective

25   community site. This co-branding opportunity will allow the partner to further

26   build a relevant service offering for its members while increasing the perceived

27   value of its community. All partners can be given the opportunity to place a

1   branding message on all "Word-of-Mouth" emails sent by customers who have

2   entered through their respective community site.

3

4   This co-branding opportunity will allow a partner to deliver its branding message

5   to a large audience of prospective new members. By the nature of this

6   endorsement (via an existing member), a partner has the opportunity to establish

7   a trusted relationship with new members

8

9   As a Sponsor, a partner can be given the opportunity to participate in a revenue

10 stream as generated directly by its members. For example a Sponsor could

11 receive 20%-40% of all membership and transaction fees as generated by the

12 web site that implements the invention.

13 The revenue sharing program will enable a partner to build a viable E-Commerce

14 strategy while reinforcing the value of its membership

15

16 The preferred embodiment of the invention described above is only one example

17 of how the present invention can be practiced. It should be understood that

18 various changes in form and detail may be made without departing from the sprit

19 of the invention. The scope of the invention is limited only by the appended

20 claims.

1   I claim:

2

3   1) A system for facilitating the purchase of products via the internet and which

4   operates in accordance with a buy cycle, said system comprising:

5   a web server which posts a web page at the beginning of a buy cycle and which

6   describes a product and which lists prices for various quantities of the product,

7   a web server which accepts orders from purchasers and which tracks the number

8   of purchasers in a buy cycle and which closes said buy cycle based upon pre-

9   established criteria, and

10   a web server which processes the orders received in a buy cycle.

11

12   2) The system recited in claim 1 wherein said buy cycle is closed after a fixed

13   amount of time.

14

15   3) The system recited in claim 2 wherein said web page post the length of said

16   fixed amount of time.

17

18   4) The system recited in claim 3 wherein said web page posts the amount of time

19   remaining in said fixed amount of time.

20

21   5) The system recited in claim 1 wherein said buy cycle is closed after a preset

22   number of orders has been received.

23

24   6) The system recited in claim 1 wherein said buy cycle is closed after the rate at

25   which orders are being received falls below a pre-established rate.

26

27   7) A system for facilitating the purchase of products via the internet and which

28   operates in accordance with a buy cycle, said system comprising

1   means which posts a web page at the beginning of a buy cycle and which

2   describes a product and which lists prices for various quantities of the product,

3   means which accepts orders from purchasers and which tracks the number of

4   purchasers in a buy cycle and which closes said buy cycle based upon pre-

5   established criteria, and

6   means which processes the orders received in a buy cycle.

7

8   8) A method for facilitating the purchase of products via the internet during a buy

9   cycle, said method comprising

10   posting a web page at the beginning of a buy cycle and which describes a

11   product and which lists prices for various quantities of the product,

12   accepting orders from purchasers,

13   tracking the number of purchasers in a buy cycle,

14   closing said buy cycle based upon pre-established criteria, and

15   processing the orders received in a buy cycle.

16

17   9) The method recited in claim 8 wherein said buy cycle is closed after a fixed

18   amount of time.

19

20   10) The method recited in claim 9 wherein said web page post the length of said

21   fixed amount of time.

22

23   11 The method recited in claim 10 wherein said web page posts the amount of

24   time remaining in said fixed amount of time.

25

26   12) The method recited in claim 8 wherein said buy cycle is closed after a preset

27   number of orders has been received.

28

1   13) The method recited in claim 8 wherein said buy cycle is closed after the rate

2   at which orders are being received falls below a pre-established rate.

3

4   14) The method recited in claim 8 wherein said orders are processed by charging

5   the cost of each order to the purchaser's credit card.

6

7   15) A system for helping customers buy products via the internet comprising,

8   a web page that lists the price of a product at various volume levels,

9   a program for establishing a buy cycle which has a pre-established termination

10   point.

11   a program which accepts orders for products and which posts the number of

12   orders accepted within a buy cycle, and

13   a program which fills the orders received during a buy cycle.

14

15   16) A system for helping customers buy products via the internet comprising,

16   a web page that lists the price of a product at various volume levels,

17   means for establishing a buy cycle which has a pre-established termination point,

18   means which accepts orders for products and which posts the number of orders

19   accepted within a buy cycle, and

20   means for filling orders received during a buy cycle.

21   17) The system recited in claim 1 including reverse action means whereby

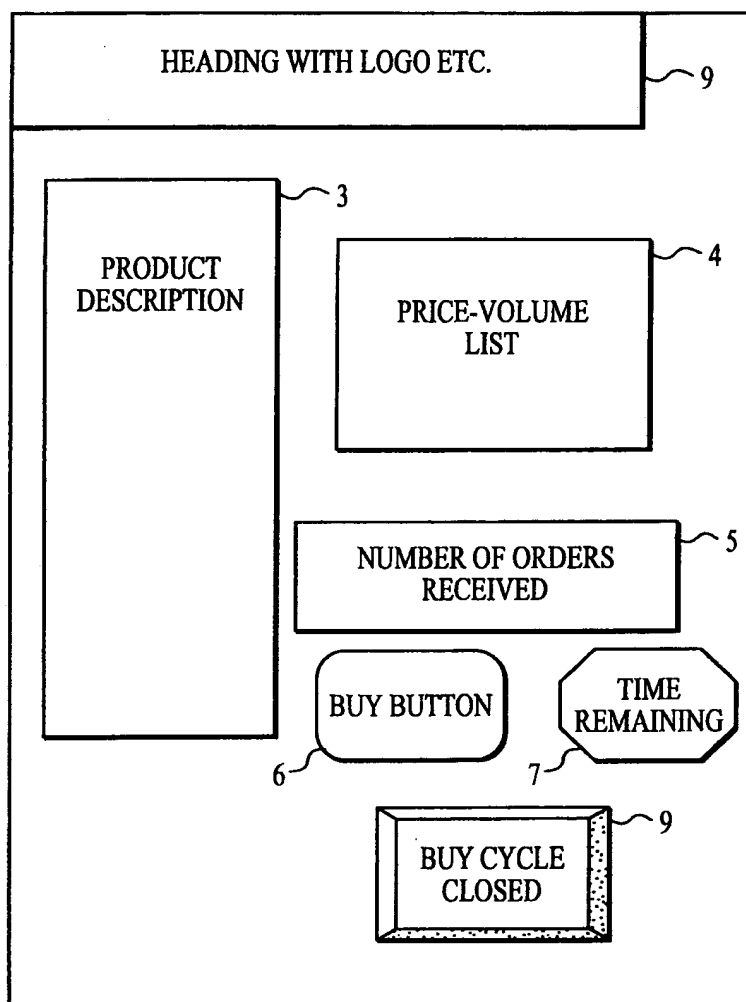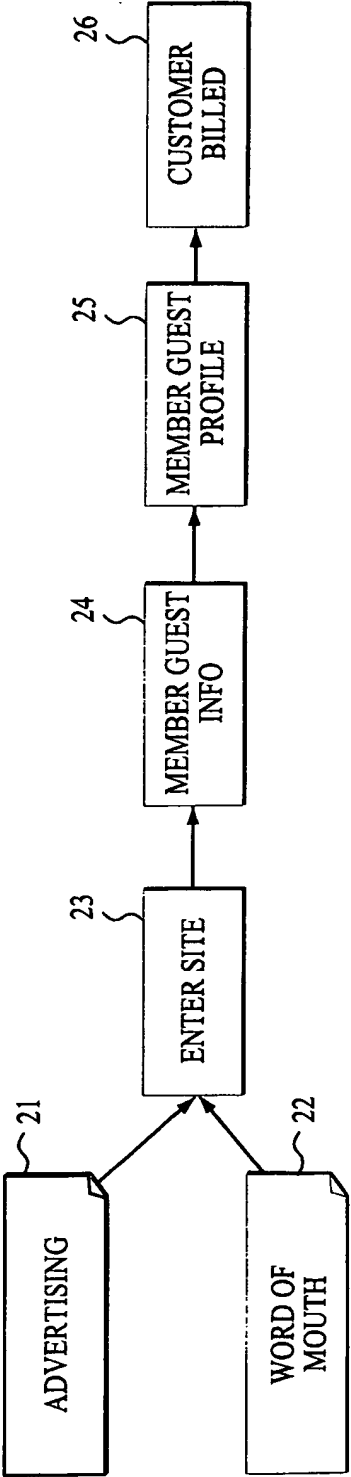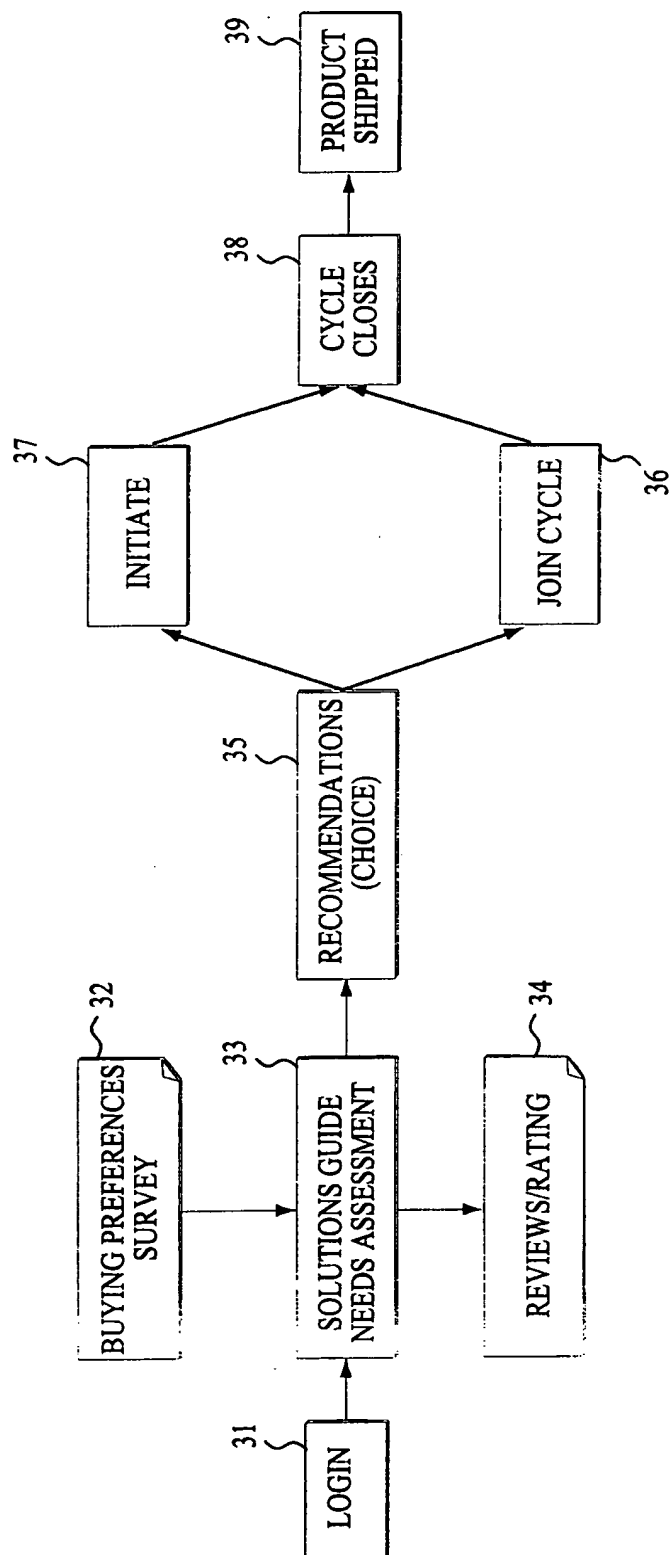22   suppliers bid against each other to offer the best price for the demand.
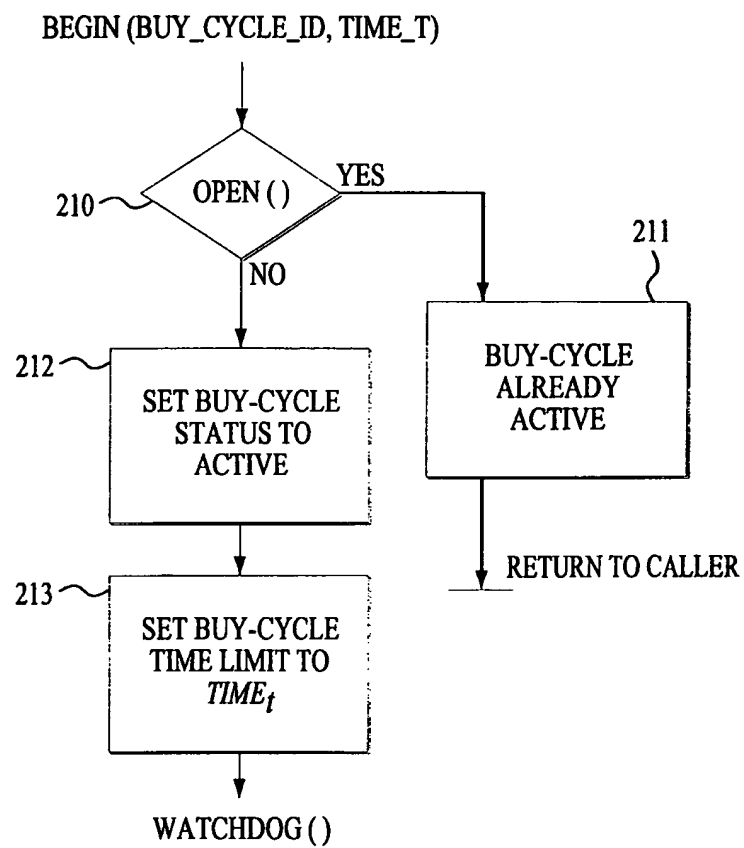
FIG. 1

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FIG. 2

FIG. 3

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BEGIN (BUY_CYCLE_ID, TIME_T)

210 — OPEN ( )

YES → BUY-CYCLE ALREADY ACTIVE   211

NO

212 — SET BUY-CYCLE STATUS TO ACTIVE

213 — SET BUY-CYCLE TIME LIMIT TO $TIME_t$

RETURN TO CALLER

WATCHDOG ( )

FIG. 4

END (BUY_CYCLE_ID)

220 — OPEN ( )

NO

YES

221

BUY-CYCLE
NOT ACTIVE

222 — SET BUY-CYCLE
STATUS TO
INACTIVE

RETURN TO CALLER

223 — NOTIFY
BUY-CYCLE
ADMINISTRATOR

RETURN TO CALLER

FIG. 5

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WATCHDOG (BUY_CYCLE_ID)

FIG. 6

OPEN (BUY_CYCLE_ID)

240 — DB CALL TO GET
BUY_CYCLE_ID
STATE

241 — STATE ( ) → ACTIVE

INACTIVE

242

BUY-CYCLE
IS ACTIVE
(1)

RETURN TO CALLER

243 — BUY-CYCLE
IS INACTIVE
(0)

RETURN TO CALLER

FIG. 7

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NO_SLICE (BUY_CYCLE_ID)

250 —⌐ ┌─────────────────┐
         │   DB CALL TO   │
         │   GET ALL ROWS   │
         │ FOR BUY_CYCLE_ID │
         └─────────────────┘

251 —⌐ ┌─────────────────┐
         │ COUNT NUMBER   │
         │   OF ROWS   │
         │   *m*   │
         └─────────────────┘
                 │ RETURN TO CALLER

FIG. 8

MAX (BUY_CYCLE_ID)

260

DB CALL TO GET
NO_ITEMS_MAX
FOR ROW m-1

RETURN TO CALLER

FIG. 9

CURRENT (BUY_CYCLE_ID)

270 —
```
DB CALL TO GET
NO_ITEMS_CURRENT
FOR BUY_CYCLE_ID
```

RETURN TO CALLER

FIG. 10

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PRICE (BUY_CYCLE_ID, n)

280 — SET
$m=0; M=m$
WITH NO_SLICE ( )

281 — DB CALL TO GET
P_0 AND n_0
FOR BUY_CYCLE_ID

282 — $m=m+1$

283 — DB CALL TO GET
P_m AND n_m
FOR BUY_CYCLE_ID

284 — $n_m > n$ — YES →

285 — PRICE SET TO
P_{m-1}

RETURN TO CALLER

NO

286 — NO — $m=M$ — YES →

287 — PRICE SET TO
P_m

RETURN TO CALLER

FIG. 11

PRICE_CURRENT (BUY_CYCLE_ID)

290 — **SET *n* THROUGH CALL TO CURRENT ( )**

291 — **GET PRICE THROUGH CALL TO PRICE (n)**

RETURN TO CALLER
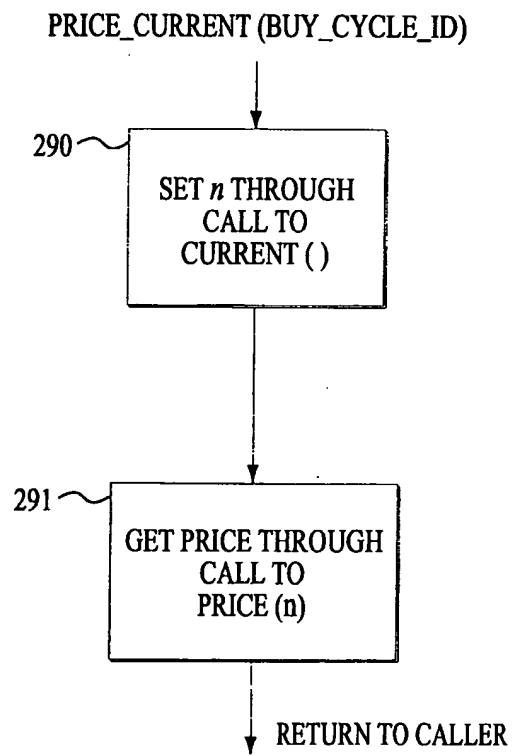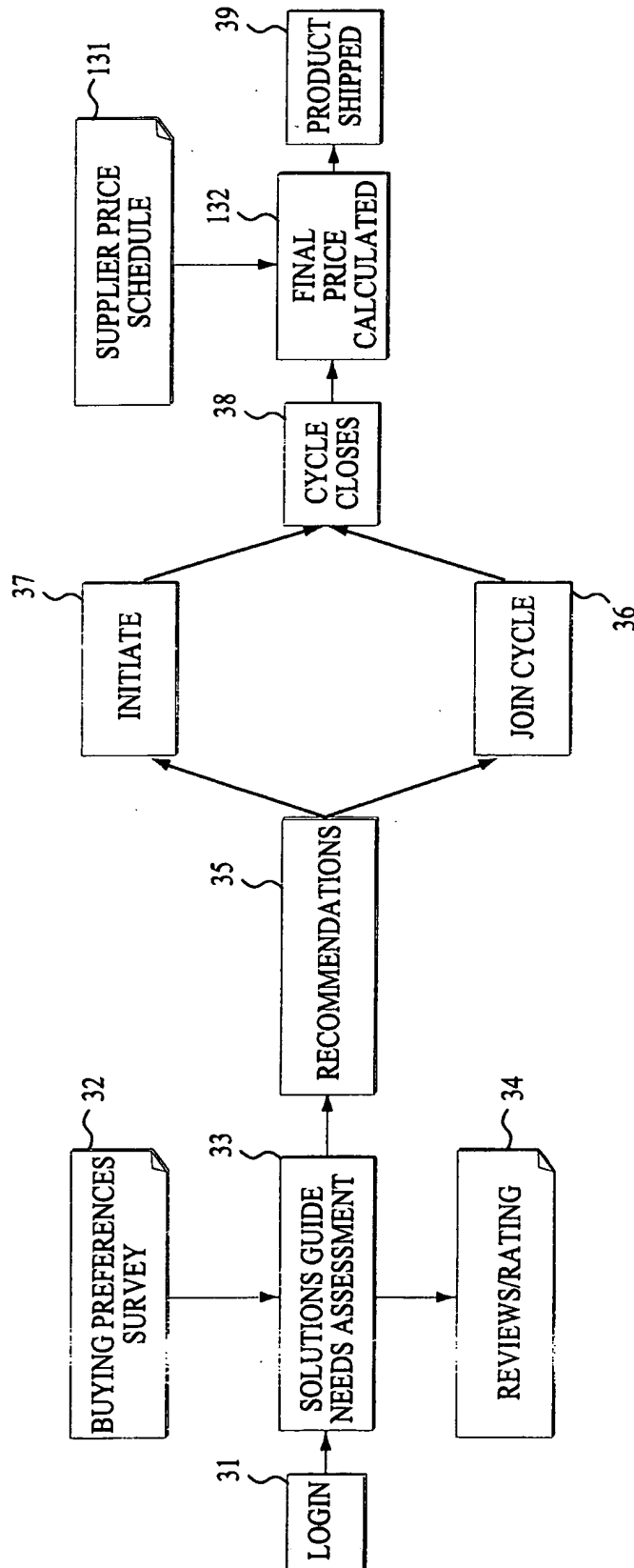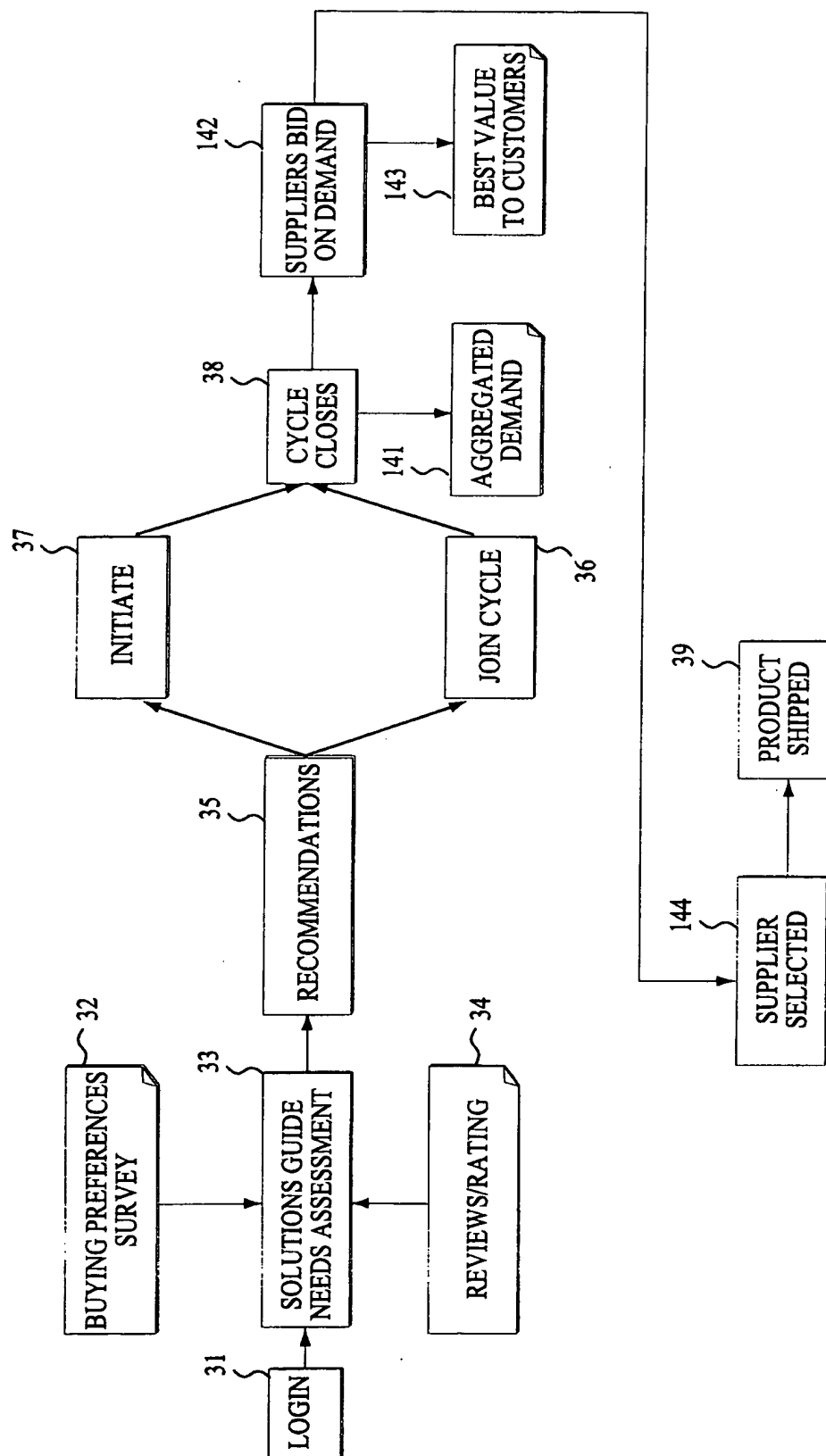
FIG. 12

FIG. 13

FIG. 14

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/02222

A. CLASSIFICATION OF SUBJECT MATTER
IPC(7) :G06F 17/60
US CL :705/26
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
U.S. : 705/26
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,799,284 A (BOURQUIN) 25 August 1998, col. 2, lines 40-67; col. 3, lines 59-67; col. 4, lines 1-59	1-17
Y,P	US 5,913,210 A (CALL) 15 June 1999, col. 3, lines 42-58; col. 12, lines 1-27	1-17
Y	US 5,794,207 A (WALKER et al.) 11 August 1998, col. 8, lines 28-67; col. 9, lines 1-67; col. 10, lines 18-22; col. 14, lines 30-52; col. 20, lines 18-29	1-17
Y,P	US 5,890,137 A (KOREEDA) 30 March 1999, col. 2, lines 30-56	1-17
Y	US 5,727,165 (ORDISH et al.) 10 March 1998, col. 4, lines 63-66	2

☒ Further documents are listed in the continuation of Box C.	☐ See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance		
"E"	earlier document published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed	"&"	document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
27 APRIL 2000	23 MAY 2000
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer ALLEN MACDONALD Joni Hill
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Form PCT/ISA/210 (second sheet) (July 1998)*

	International application No.
	PCT/US00/02222

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,835,896 A (FISHER et al.) 10 November 1998, fig. 12 [94, 97-98, 155]; fig. 14, [181, 183-185]; col. 2, lines 20-33	1-17

B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

DIALOG; STN

search terms: on-line, seller, buyer, order, purchaser, buy cycle, limited time offer, web server, web page on Internet, tracking number of purchasers, accepting orders, closing buy cycle, credit card, suppliers bid for sales